Determining the Impact of Local Government Spending on Community and Economic Development

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Abstract

Many communities spend large sums on community and economic development activities. What is not known is how much impact communities are getting for their money. This study analyzes what impact local government spending on development activities has on the community. In doing so, it investigates the validity of a commonly accepted public policy. It uses data of West Virginia counties over a 10-year period to ascertain whether the level of spending on community and economic development has any affect on local prosperity and well-being. The amount spent by each county was used as a predictor for measures of community vitality.

Keywords

community development, economic development, impact, regression, spending

Determining the Impact of Local Government Spending on Community and Economic Development

The concept of impact has become increasingly important as funding resources have become increasingly scarce. The concept of wanting to get "value for the money" is not a new one.

Meanwhile, many communities spend significant sums of money on community and economic development activities. The rationale for these expenditures is simple and straightforward. The "conventional wisdom" states that communities that actively promote development, that make meaningful investments in infrastructure, and that provide ample funding for related programs will fare better than those communities that do not.

This "conventional wisdom" has been generally accepted by government decision-makers. However, it is rarely put to the test. In other words, it is not known is how much impact communities are getting for their overall level of spending on community and economic development.

This study begins the process of looking at local community and economic development efforts as a whole. Its purpose is to examine the affect of spending on community and economic development projects by a local government in its totality. It analyzes what impact local government spending on development activities has on the greater community. It strives to link practice with results in an effort to aid policy decision-makers.

To do this, the study examines the spending of West Virginia counties over a 10-year period to determine to what degree expenditures on community and economic development affect community prosperity and well-being. It is an expansion of a previous pilot study. It goes beyond examinations of the effectiveness and financing of individual development projects.

Setting

West Virginia counties spend significant sums on community and economic development activities. Over the last decade, the 55 counties in the Mountain State reported budgetary outlays of over $65 million – an average of over $118,000 annually for each county. Of course, a few counties reported spending next to nothing on development-related activities over the 10-year period (including one that spent nothing) while two counties averaged spending more than $1 million a year. In that context, this research basically seeks to answer the question, "What difference did the $65 million spent by West Virginia counties since 1997 make?"

The focus of this research is on counties because the state law in West Virginia emphasizes county-based economic development agencies. Current state local economic development initiatives of the West Virginia Development Office emphasize county (and multi-county) efforts. The Certified Development Community Program offers a county-level designation to places that meet a specified list of criteria (WVDO, 2007a). Matching grants of up to $34,000 are made available annually to the officially designated economic development agency in each county (or for each county in a multi-county region) through the related Local Economic Development Program (WVDO, 2007b). These programs came into being as part of the "Economic Development Act of 1985" which has guided economic development in the state since its passage (WVC, Chapter 5B).

The foundation for county involvement in community and economic development in West Virginia was established over 40 years ago when the state authorized local development authorities in 1963. The law permitted County Commissions (as well as municipal governments) to undertake activities designed to directly promote economic development (WVC, Chapter 7). It also spelled out a specific rationale for the creation and utilization of development authorities:

> The purposes for which the authority is created are to promote, develop and advance the business prosperity and economic welfare of the municipality or county for which it is created, its citizens and its industrial complex; to encourage and assist through loans, investments or other business transactions in the locating of new business and industry within the municipality or county and to rehabilitate and assist existing businesses and industries therein; to stimulate and promote the expansion of all kinds of business and industrial activity which will tend to advance business and industrial development and maintain the economic stability of the municipality or county, provide maximum opportunities for employment, encourage thrift, and improve the standard of living of the citizens of the county; to cooperate and act in conjunction with other organizations, federal, state or local, in the promotion and advancement of industrial, commercial, agricultural, and recreational developments within the municipality or county; and to furnish money and credit, land and industrial sites, technical assistance and such other aid as may be deemed requisite to approved and deserving applicants for the promotion, development and conduct of all kinds of business activity within the municipality or county (WVC, §7-12-2).

Previous Studies

Despite the importance that such activities are given, the research on the relationship between direct government funding for development-related activities and its impact is limited at best.

Eisinger (2002) reviewed the various techniques used for funding economic development by governments. He reported on both tax incentives (abatements, exemptions, and credits) and revenue devices (borrowing, intergovernmental funds, and earmarks) found at the state and local level. However, he offered little in the way of evaluation, perhaps in part because of his opening observations on the relatively short history of such efforts: “Prior to 1970, only a handful of pioneering states and cities had ventured to take any serious responsibility for encouraging private investment and job creation within their jurisdiction” (Eisinger, 2002, p. 20).

Instead, what exists are testimonials regarding the impact of funding for development-related activities. For example, Stromberg (2006) wrote for members of the American Planning Association on what would happen to community development and economic development activities if the budget cuts proposed for the FY2007 federal budget by President George H.W. Bush were accepted.

Stromberg (2006) also cited projects in Fort Worth, Texas, Greensboro, N.C., and Orlando, Fla., as benefiting from intergovernmental funding for development. Similarly, Davis (2005) discussed how Junction City, Colo., utilized federal Community Development Block Grants to leverage additional private investment in the city.

Related to these is the case for public investment leading to community and economic development. Guevara (2002) reported on various methods used to generate funds for infrastructure improvement that directly led to improved economic conditions in a case study of Bloomington, Ind.

However, there has been little in the way of formal evaluation of such projects. There is a demand for accountability of similar activities, as Carman (2007) discussed in an examination of the situation facing community-based organizations. One of the few evaluation efforts related to

the funding of development activities was a survey of service providers of the Learn to Care workforce development program in England. One interesting finding was that more than three-quarters of "Learn to Care members (76 percent) make a strong plea to the DH [Department of Health] to set even more stringent performance indicators to help maintain grants for their intended purposes and inform future planning" (Brown, 2007, p. 33).

There has been a good deal of research though on the related topic of economic development incentives. Most call into question the effectiveness, efficiency, and equity of such programs. For example, Peters and Fisher (2004), in their "metareview" of studies on impact of incentives shows that almost all studies found that impact was minor or ambiguous. This led to their first conclusion:

> The upshot of all of this is that on this basic question of all – whether incentives induce significant new investment or jobs – we simply do not know the answer. Since these programs probably cost state and local governments $40-$50 billon a year, one would expect some clear and undisputed evidence of their success. This is not the case. In fact, there are very good reasons – theoretical, empirical, and practical – to believe that economic development incentives have little or no impact on firm location and investment decisions (Peters and Fisher, 2004, p 32).

Peters and Fisher also found issues with several other typical rationales provided for economic incentives. They noted it was highly unlikely that incentive generosity will be determined solely by state economic conditions. They said it was very difficult for states to gain revenue through a typical incentive package because they give away tax revenue unnecessarily and because establishments often move or cease to exist before they begin paying their full tax

share. (It should be noted that they did though find that incentives apparently were more likely to be revenue positive at the local level.) They stated that the limited targeting advantages of incentives had been overcome by increases in general incentives. They remarked that local employment gains had been diluted by those who move in to get jobs. All of this led to the conclusion that the status quo with respect to development incentives did not work:

> It seems to us that there is a need for a radical transformation of policy ideas on how we achieve local economic growth and how we get people working. The standard justifications given for incentive policy by state and local officials, politicians and many academics are, at best, poorly supported by the evidence (Peters and Fisher, 2004, p. 35).

On the other side of this issue, Bartik (2005) has provided some support for incentives. He noted that they can lead to employment increases which have social benefits and that they are useful because the increased mobility of businesses has increased their responsiveness to incentives. He also found that that a 10 percent tax cut yields a 2 to 3 percent business increase. However, even he observed problems with the incentive structure, remarking that the tax cuts mentioned above can actually result in less business if they were achieved by reducing government services.

Also, he stated that incentives can be wasteful because policymakers overestimate benefits and debate dominated by business interests; “The problem is that many incentives currently being offered in the United States have costs that exceed benefits” (Bartik, 2005, p. 146). To that end, he concluded, “[w]asteful economic development incentives should be dealt

with largely by opening up the incentives policy process at the state and local level to broader public participation and debate" (Bartik, 2005, p. 154).

Methodology

The intent of this research is to determine to what degree (if any) that county-level spending in the areas of community and economic development impacted community well-being and quality of life. It investigates the affects of a commonly accepted public policy by using performance indicators to determine if development activities make a difference. This has an impact on the roles taken on by government in development activities. It also serves to inform decision-makers, which means it has an affect on the political discussion related to development.

The research is also an expansion of and analogous to the research previously done on development incentives described above and should help provide the framework for expanded debate as called for by Bartik (as well as potentially the basis for the radical transformation called for by Peters and Fisher).

To accomplish its goals, variables related to the money allocated by each West Virginia county government for such activities were treated as the independent variable in the analysis. These variables were then analyzed using regression and analysis of variance techniques to see if they had any meaningful explanatory power for the level of or changes in various indicators selected to serve as a proxy for community vitality.

The basic premise for each independent variable (or group of variables) was simple and straightforward: higher spending levels or a higher growth in spending would lead to improvements in the community indicators. In other words, the more money put into the situation, the better it would be. Thus, the intent herein is to see if problems related to

community and economic development have been solved in West Virginia through programmatic expenditures – i.e., by "throwing money at them."

Several types of variables were used in this study. The most common were the *measured variables*. These included actual data for variables as well as measures of central tendencies (e.g., mean and median) and other statistical descriptions (e.g., minimum and maximum). Two other types of variables were derived from measured data: *indexed variables* and *change rate variables*. The indexed variables compared county indicators to the state average. The change rate variables examined how much different indicators changed during the study period. The final type of variable used was the hybrid *change rate indexed variables*. These variables compared the rate of change to the state average.

A total of 17 independent variables were used in the analysis – ten based upon *total spending levels* and seven based upon *per capita spending* levels. Additional analysis was done grouping the variables by their basis, by type, and using all the independent variables, which resulted in six series of six multiple regressions (since only one independent variable was an indexed variable, no multiple regression could be performed for using that type of variable). Overall, 23 regression analyses were done (see Table 1 for list).

The independent variables were created using data for the last 10 fiscal years (Fiscal Year 1998 to Fiscal Year 2007) listed on the (final) revised budget provided to the West Virginia State Auditor's Office. Monies from two funds were included – the General Fund and the Coal Severance Fund. The former is the basic budgetary fund of the county. The latter is a special revenue fund but one that has virtually no restrictions in how its monies can be used (no more than 25 percent of the funds can be used for 'personal services" and at least 75 percent of funds

have to be spent in coal-producing areas of counties with over 200,000 population (only Kanawha County)) (WVC, Chapter 11).

Table 1: Independent Variables

Ref.	Variable Name	Type	Time	Expectations
S01	Spending Mean	Measured	FY98-FY07	Higher mean → improved indicators
S02	Spending Median	Measured	FY98-FY07	Higher median → improved indicators
S03	Spending Three-Year Average Mean	Measured	FY98-FY07	Higher mean → improved indicators
S04	Spending Three-Year Average Median	Measured	FY98-FY07	Higher median → improved indicators
S05	Spending Maximum	Measured	FY98-FY07	Higher maximum → improved indicators
S06	Spending Minimum	Measured	FY98-FY07	Higher minimum → improved indicators
S07	Spending Annual Change	Change Rate	FY98-FY07	Greater change rate → improved indicators
S08	Spending Three-Year Avg. Change	Change Rate	FY98-FY07	Greater change rate → improved indicators
S09	Spending Annual Change Index	Change Rate Index	FY98-FY07	Higher relative index → improved indicators
S00	Spending Three-Year Avg. Change Index	Change Rate Index	FY98-FY07	Higher relative index → improved indicators
S11	Spending Per Capita Mean	Per Capita	FY98-FY07	Higher mean → improved indicators
S12	Spending Per Capita Median	Per Capita	FY98-FY07	Higher median → improved indicators
S13	Spending Per Capita Maximum	Per Capita	FY98-FY07	Higher maximum → improved indicators
S14	Spending Per Capita Minimum	Per Capita	FY98-FY07	Higher minimum → improved indicators
S15	Spending Per Capita Indexed	Indexed	FY98-FY07	Higher index score → improved indicators
S16	Spending Per Capita Change	Change Rate	FY98-FY07	Greater change rate → improved indicators
S17	Spending Per Capita Change Indexed	Change Rate Index	FY98-FY07	Higher relative index → improved indicators
SM1	All Spending Total Variables	S01 to S10	FY98-FY07	Higher values/Increases → improved indicators
SM2	All Spending Per Capita Variables	S11 to S17	FY98-FY07	Higher values/Increases → improved indicators
SM3	Spending Measured Variables	S01 to S06, S11 to S14	FY98-FY07	Higher values/Increases → improved indicators
SM4	Spending Change Rates	S07, S08, S16	FY98-FY07	Higher values/Increases → improved indicators
SM5	Spending Change Rate Indexed	S09, S10, S17	FY98-FY07	Higher values/Increases → improved indicators
SM6	Spending Indexed Variables	S15	FY98-FY07	Higher values/Increases → improved indicators
SMX	All Spending Variables	S01 to S00, S11 to S17	FY98-FY07	Higher values/Increases → improved indicators

Note: SM6 performed as part of the analysis for S15 and is not reconsidered separately.

The spending levels used in the analysis were the sums of the amounts listed for several line items in the "Chart of Accounts" that encompass the various types of direct activities counties can undertake with respect to community and economic development. The line items included four objects listed consecutively under the classification of "General Government." They were Regional Development Authority (429), Community Development (430), Economic Development (431), and Industrial Development (432). Added to this was any reported spending

for the "Capital Projects" object of Community Development (985), which was added to the "Chart of Accounts" beginning with Fiscal Year 2002.

Meanwhile, a total of 25 indicators of community vitality and well-being – the dependent variables – were used in the analysis. There were seven variables that dealt with unemployment rates and related calculations (including employment rates which are the opposite of unemployment rates). These were selected because it was thought that improved conditions in the community and the local economy would be demonstrated by lower (and lowering) unemployment rates and higher (and increasing) rates of employment (see Table 2 for list).

Table 2: Dependent Variables (Indicators)

Ref.	Variable Name	Type	Time	Expectations
U01	Unemployment Rate	Measured	2006	*Inverse (decrease indicates improvement)*
U02	Unemployment Rate Change	Change Rate	2000-2006	*Inverse (decrease indicates improvement)*
U03	Unemployment Rate Change Index	Change Rate Index	2000-2006	*Inverse (decrease indicates improvement)*
U11	Employment Rate	Measured	2006	Direct (increase indicates improvement)
U12	Employment Rate Change	Change Rate	2000-2006	Direct (increase indicates improvement)
U13	Employment Indexed	Indexed	2006	Direct (increase indicates improvement)
U14	Employment Rate Change Indexed	Change Rate Index	2000-2006	Direct (increase indicates improvement)
M01	Employment Per Capita	Per Capita	2005	Direct (increase indicates improvement)
M02	Employment Per Capita Indexed	Indexed	2005	Direct (increase indicates improvement)
M03	Employment Per Capita Change	Change Rate	2000-2005	Direct (increase indicates improvement)
M04	Employment Per Capita Change Indexed	Change Rate Index	2000-2005	Direct (increase indicates improvement)
M11	Employment Change	Change Rate	2000-2005	Direct (increase indicates improvement)
M12	Employment Change Indexed	Change Rate Index	2000-2005	Direct (increase indicates improvement)
W01	Average Annual Wage	Measured	2005	Direct (increase indicates improvement)
W02	Average Annual Wage Indexed	Indexed	2005	Direct (increase indicates improvement)
W03	Average Annual Wage Change	Change Rate	2000-2005	Direct (increase indicates improvement)
W04	Average Annual Wage Change Indexed	Change Rate Index	2000-2005	Direct (increase indicates improvement)
B01	Business Establishments Per Capita	Per Capita	2005	Direct (increase indicates improvement)
B02	Business Establishments Per Capita Indexed	Indexed	2005	Direct (increase indicates improvement)
B03	Business Establishments Per Capita Change	Change Rate	2000-2005	Direct (increase indicates improvement)
B04	Business Establishments Per Capita Change Indexed	Change Rate Index	2000-2005	Direct (increase indicates improvement)
B11	Business Establishments Change	Change Rate	2000-2005	Direct (increase indicates improvement)
B12	Business Establishments Change Indexed	Change Rate Index	2000-2005	Direct (increase indicates improvement)
P01	Population Change	Change Rate	2000-2006	Direct (increase indicates improvement)
P02	Population Change Rate Index	Change Rate Index	2000-2006	Direct (increase indicates improvement)

Note: Use of italics indicates that a negative coefficient is expected for the selected indicators.

There were six variables that dealt the level of employment. These were selected because it was thought that improved conditions in the community and the local economy would be demonstrated by higher (and increasing) employment. There were four variables that dealt with wage levels. These were selected because it was thought that improved conditions in the community and the local economy would be demonstrated by higher (and increasing) wages. There were six variables that dealt with the number of business establishments. These were selected because it was thought that improved conditions in the community and the local economy would be demonstrated by higher (and increasing) business activity. And there were two variables that dealt with population change. These were selected because it was thought that improved conditions in the community and the local economy would be demonstrated by increasing population.

Data on unemployment, employment, wages, and business establishments came from the Workforce West Virginia. Data on population change came from the U.S. Census Bureau (as did the population data needed for per capita estimates). The most recent data available was used for each indicator. This was 2006 data for unemployment rates and population change and 2005 data for employment levels, wage rates, and number of business establishments. Change for each indicator was measured from 2000 to provide a common time frame for analysis as comparable data was not readily available for all indicators for the late 1990s.

Findings

Of the 520 unique regression analyses performed, 91 produced statistically significant results at the 0.10 level. This included 37 for the single regressions with respect to the variables

for the total spending levels, 19 for the single regressions with respect to the variables for per capita spending levels, and 35 for the multiple regressions.

However, just because the results were statistically significant does not mean that they were meaningful. Most of the equations had limited explanatory power. For example, no single variable regression explained as much as 15 percent of the variation in the indicator (dependent variable) examined. Meanwhile, 11 of the multiple regressions had an R^2 greater than 0.5, but only four had an adjusted R^2 greater than 0.5.

Furthermore, there are many variables near-zero coefficients (defined herein as coefficients that are zero through the first six decimal places). Also, there are coefficients that have the wrong sign, indicating an inverse of the expected relationship. These were found both in the single regressions and among some of the independent variables in the multiple regressions (sometimes nearly half – or occasionally more – of the coefficients had the wrong sign).

In addition, 6 of the 17 independent variables did not produce any statistically significant results in single regression analysis. And no regression equation (single variable or multi-variable) was statistically significant for 7 of the 25 dependent variables indicators (see Table 3 for list).

Table 3: Variables without any Statistically Significant Results

Independent Variables	Dependent Variables
S07	U12
S08	U14
S09	M03
S00	M04
S16	M11
S17	B03
	B04

Even with these caveats though, there are some interesting findings to be discussed in more detail. The highlights include both the confirmation of some expected relationships and the discovery of some unexpected associations.

Single Regression – Total Spending Variables

There were 37 statistically significant single regression equations using the independent variables for total spending levels (see Table 4 for complete results). Of these, 34 equations had indicators for employment per capita (M01, M02), annual average wage (W01, W02), or establishments per capita (B01, B02) as the dependent variable. The basic indicator (either a measured variable or a per capita variable) and its associated index (an indexed variable) demonstrated the expected relationship when regressed against mean annual spending level (S01), median annual spending level (S02), mean three-year average spending level (S03), maximum annual spending level (S05), and minimum annual spending level (S06). Also, the employment per capita and establishment per capita variables demonstrated the expected relationship when regressed against the median three-year average spending level (S04).

While significant, these relationships were not strong, however. Only six of the regressions were significant at the 0.05-level. Just 12 had an R^2 greater than 0.1 and none had an R^2 greater than 0.15 (the highest was 0.134). Also, 25 of the independent variables had near zero coefficients, making them virtually meaningless parts of the equation. As a result, only two equations had explanatory power greater than 10 percent and coefficients greater than 0.0000005 – employment per capita indexed (M02) regressed against median annual spending level (S02) (R^2=0.101) and regressed against minimum annual spending level (S06) (R^2=0.134).

The three other statistically significant regressions all had the minimum annual spending level (S06) as the independent variable. The regressions explained changes in the unemployment

Table 4: Single Regression Results – Total Spending Variables

Independent Variable	Dependent Variable	r2 Value	p Score	Notes
S01	M01	0.127	0.008	Near Zero Coefficient
S01	M02	0.127	0.008	Near Zero Coefficient
S01	W01	0.06	0.072	
S01	W02	0.006	0.072	Near Zero Coefficient
S01	B01	0.086	0.029	Near Zero Coefficient
S01	B02	0.086	0.029	Near Zero Coefficient
S02	M01	0.134	0.006	Near Zero Coefficient
S02	M02	0.134	0.006	
S02	W01	0.051	0.097	
S02	W02	0.051	0.097	Near Zero Coefficient
S02	B01	0.091	0.025	Near Zero Coefficient
S02	B02	0.091	0.025	Near Zero Coefficient
S03	M01	0.113	0.012	Near Zero Coefficient
S03	M02	0.113	0.012	Near Zero Coefficient
S03	W01	0.051	0.096	
S03	W02	0.051	0.096	Near Zero Coefficient
S03	B01	0.076	0.041	
S03	B02	0.076	0.041	Near Zero Coefficient
S04	M01	0.104	0.016	Near Zero Coefficient
S04	M02	0.104	0.016	Near Zero Coefficient
S04	B01	0.073	0.041	Near Zero Coefficient
S04	B02	0.073	0.041	Near Zero Coefficient
S05	M01	0.118	0.010	Near Zero Coefficient
S05	M02	0.118	0.010	Near Zero Coefficient
S05	W01	0.064	0.062	
S05	W02	0.064	0.062	Near Zero Coefficient
S05	B01	0.077	0.041	Near Zero Coefficient
S05	B02	0.077	0.041	Near Zero Coefficient
S06	U01	0.067	0.055	
S06	U11	0.067	0.055	Near Zero Coefficient
S06	U13	0.067	0.055	Near Zero Coefficient
S06	M01	0.101	0.018	Near Zero Coefficient
S06	M02	0.101	0.018	
S06	W01	0.058	0.075	
S06	W02	0.058	0.075	Near Zero Coefficient
S06	B01	0.082	0.039	Near Zero Coefficient

rate (U01), the employment rate (U11) and the employment rate index (U13). Like many of the regressions discussed above, however, statistically significant did not mean meaningful. None were significant at the 0.05-level. These equations explained less than 10 percent of the variation

in the indicators and the regressions for the two employment rate variables had near zero coefficients.

Single Regression – Per Capita Spending Variables

There were 19 statistically significant single regression equations using the independent variables for per capita spending levels (see Table 5 for complete results). This included 10 equations that had indicators for average annual wage change (W03, W04) as the dependent variable. Another six had indicators for changes in unemployment rates (U02, U03) as the dependent variables. In both cases though, the relationships were all relatively weak and, more importantly, they were in the opposite direction than predicted.

The wage change variables had statistically significant relationships when regressed against mean annual spending per capita (S11), median annual spending per capita (S12), maximum annual spending per capita (S13), minimum annual spending per capita (S14), and mean annual spending per capita indexed (S15). Six of these relationships were significant at the 0.05-level. The same six equations produced R^2 greater than 0.1, but none explained even one-sixth of the variation (the highest was 0.156). Also, all the coefficients were in the opposite direction than predicted, meaning that wages increased faster if spending per capita was lower – completely refuting the proposed hypothesis related to funding and improved indicators.

The situation with respect to the unemployment rate change variables was similar. There were statistically significant relationships when the indicators were regressed against mean annual spending per capita (S11), median annual spending per capita (S12), and mean annual spending per capita indexed (S15). Only two of the relationships were significant at the 0.05-level, though, and none of the equations produced an R^2 greater than 0.1 (the highest was 0.092). Again, all the coefficients were in the opposite direction than predicted, meaning that

unemployment increased if spending per capita was higher – again refuting the proposed hypothesis related to funding and improved indicators.

The three other statistically significant regressions all had the minimum annual spending level (S06) as the independent variable. The regressions explained changes in the unemployment rate (U01), the employment rate (U11) and the employment rate index (U13). Statistically significant did not mean meaningful though as none were significant at the 0.05-level and each equation explained less than 10 percent of the variation in the indicators.

Table 5: Single Regression Results – Per Capita Spending Variables

Independent Variable	Dependent Variable	r2 Value	p Score	Notes
S11	U02	0.067	0.057	*Inverse of Relationship Expected*
S11	U03	0.067	0.057	*Inverse of Relationship Expected*
S11	W03	0.102	0.017	Inverse of Relationship Expected
S11	W04	0.102	0.017	Inverse of Relationship Expected
S12	U02	0.092	0.024	*Inverse of Relationship Expected*
S12	U03	0.092	0.024	*Inverse of Relationship Expected*
S12	W03	0.102	0.017	Inverse of Relationship Expected
S12	W04	0.102	0.017	Inverse of Relationship Expected
S13	W03	0.069	0.053	Inverse of Relationship Expected
S13	W04	0.069	0.053	Inverse of Relationship Expected
S14	U01	0.056	0.083	
S14	U11	0.056	0.083	
S14	U13	0.056	0.083	
S14	W03	0.069	0.053	Inverse of Relationship Expected
S14	W04	0.069	0.053	Inverse of Relationship Expected
S15	U02	0.068	0.054	*Inverse of Relationship Expected*
S15	U03	0.068	0.054	*Inverse of Relationship Expected*
S15	W03	0.106	0.015	Inverse of Relationship Expected
S15	W04	0.106	0.015	Inverse of Relationship Expected

Note: Use of italics indicates that a negative coefficient was expected for the selected equations.

Multiple Regressions

There were 35 multiple regressions that yielded statistically significant results (see Table 6 for complete results). Generally, these equations had greater explanatory power than the single regressions. Nevertheless, the multiple regressions still had the same problems found in single

regressions – namely some variables with near zero coefficients and others with signs in the opposite direction than predicted.

A total of 15 of the significant multiple regressions used all 17 independent variables. This included nine regressions that were significant at the 0.05-level. Each of these explained more than half the variation in the dependent variable, though in some cases this appeared to be as much of a function of using all the variables as it did their explanatory power.

The most powerful regressions appeared to be those associated with the population change variables (P01, P02). The equations explained more than three-quarters of the variation in the dependent variables (R^2=0.788) and still explained over two-thirds of the variation when an adjustment was made for the number of predictors in the model (adjusted R^2=0.690). However, nine of the independent variables had coefficients with signs that were opposite of what was expected and another variable had a near zero coefficient. Given all the independent variables basically measure the same thing – spending levels for community and economic development activities – it is unclear what meaning, if any, these "powerful" multiple regressions truly have.

Nine of the significant multiple regressions used all of the total spending variables as the independent variables. Only two of the regressions were significant at the 0.05-level though – those examining the indicators for average annual wage change (W03, W04). The equations explained roughly two-fifths of the variation in the dependent variables (R^2=0.409) and still explained over one-quarter of the variation when an adjustment was made for the number of predictors in the model (adjusted R^2=0.274). However, out of the 10 independent variables, six had coefficients with signs that were opposite than what was expected, including three with near zero coefficients.

Seven of the significant multiple regressions used all of per capita spending variables as the independent variables. However, none of the regressions were significant at the 0.05-level and none explained even one quarter of the variation in the dependent variables (the highest R^2 was 0.231).

The remaining eight significant multiple regressions were those specially constructed to examine variables of a particular type. They were four of the eight regressions involving change index variables, two of the five regressions involving measured variables, and two of the seven regressions involving change rate variables.

Three of the regressions for change rate index variables were statistically significant at the 0.05-level. Only one of them though explained more than one-quarter of the variation in the examined indicator. Population change index (P02) regressed against the three independent variables had an R^2 and adjusted R^2 greater than 0.5 (R^2=0.586, adjusted R^2=0.562). However, two of independent variables had coefficients with opposite signs than what was expected.

Two of the regressions for measured variables were statistically significant at the 0.05-level. The regression equations for unemployment rate (U01) and employment rate (U11) explained almost two-fifths of the variation in the dependent variables (R^2=0.396) and still explained over one-quarter of the variation when an adjustment was made for the number of predictors in the model (adjusted R^2=0.261). However, out of the 10 independent variables, seven had coefficients with signs that were opposite than what was expected and five of them had near zero coefficients in the regression for employment rate.

Two of the regressions for change rate variables were statistically significant at the 0.05-level. The regression for population change (P01) had strong explanatory power with an R^2 and adjusted R^2 greater than 0.6 (R^2=0.646, adjusted R^2=0.625). The regression for business

Table 6: Multiple Regression Results

Regression	Dep. Var.	r2 Value	p Score	Inverted Coefficient	Near Zero Coefficient
SM1: All Total Spending Variables (10)	U01	0.316	0.053	*S02, S03, S04, S05, S09, S00*	
SM1: All Total Spending Variables (10)	U02	0.289	0.091	*S02, S03, S05, S06, S07, S00*	S05, S06
SM1: All Total Spending Variables (10)	U03	0.289	0.091	*S02, S03, S05, S06, S07, S00*	S05, S06
SM1: All Total Spending Variables (10)	U11	0.316	0.053	S02, S03, S04, S05, S09, S00	S02, S03, S04, S05, S06
SM1: All Total Spending Variables (10)	U13	0.316	0.053	S02, S03, S04, S05, S09, S00	S02, S03, S04, S05, S06
SM1: All Total Spending Variables (10)	W03	0.409	0.005	S02, S03, S04, S05, S06, S00	S04, S05, S06
SM1: All Total Spending Variables (10)	W04	0.409	0.005	S02, S03, S04, S05, S06, S00	S04, S05, S06
SM1: All Total Spending Variables (10)	P01	0.298	0.076	S02, S04, S05, S06, S08, S09	S06
SM1: All Total Spending Variables (10)	P02	0.298	0.076	S02, S04, S05, S06, S08, S09	S06
SM2: All Per Capita Spending Variables (7)	U01	0.239	0.061	S11, S12, S13, S17	
SM2: All Per Capita Spending Variables (7)	U11	0.239	0.061	S11, S12, S13, S17	
SM2: All Per Capita Spending Variables (7)	U13	0.239	0.061	S11, S12, S13, S17	
SM2: All Per Capita Spending Variables (7)	W03	0.322	0.008	S11, S12, S13, S14, S16	
SM2: All Per Capita Spending Variables (7)	W04	0.322	0.008	S11, S12, S13, S14, S16	
SM2: All Per Capita Spending Variables (7)	B11	0.231	0.073	S11, S12, S13, S17	
SM2: All Per Capita Spending Variables (7)	B11	0.231	0.073	S11, S12, S13, S17	
SM3: All Measured Variables (10)	U01	0.398	0.007	S02, S03, S04, S05, S06, S11, S12	
SM3: All Measured Variables (10)	U11	0.398	0.007	S02, S03, S04, S05, S06, S11, S12	S02, S03, S04, S05, S06
SM4: All Change Rate Variables (3)	B11	0.261	0.001	S08, S16	
SM4: All Change Rate Variables (3)	P01	0.646	0.000	S08, S16	
SM5: All Change Rate Index Variables (3)	M12	0.229	0.004	S17	
SM5: All Change Rate Index Variables (3)	W04	0.133	0.062	S17	
SM5: All Change Rate Index Variables (3)	B12	0.246	0.002	S17	
SM5: All Change Rate Index Variables (3)	P02	0.586	0.000	S00, S17	
SMX: All Variables (17)	U01	0.561	0.005	S03, S05, S09, S00, S13, S16	
SMX: All Variables (17)	U02	0.461	0.056	S02, S03, S05, S06, S07, S00, S11, S15, S17	
SMX: All Variables (17)	U03	0.461	0.056	S02, S03, S05, S06, S07, S00, S11, S15, S17	
SMX: All Variables (17)	U11	0.561	0.005	S03, S05, S09, S00, S12, S16	S01, S02, S03, S04, S05, S06
SMX: All Variables (17)	U13	0.561	0.005	S03, S05, S09, S00, S12, S16	S01, S02, S04, S05, S06
SMX: All Variables (17)	W03	0.546	0.007	S02, S04, S05, S06, S07, S08, S09, S11	
SMX: All Variables (17)	W04	0.546	0.007	S02, S04, S05, S06, S07, S08, S09, S11	
SMX: All Variables (17)	B11	0.526	0.013	S01, S04, S08, S09, S11, S12, S13, S16	S06
SMX: All Variables (17)	B12	0.526	0.013	S01, S04, S08, S09, S11, S12, S13, S16	S06
SMX: All Variables (17)	P01	0.788	0.000	S01, S04, S09, S00, S11, S12, S13, S14, S16	S05
SMX: All Variables (17)	P02	0.788	0.000	S01, S04, S09, S00, S11, S12, S13, S14, S16	S05

establishment change (B01) had more limited explanatory power (R^2=0.261, adjusted R^2=0.219). In both cases though, two of the three independent variables had coefficients with opposite signs than what was expected.

Discussion and Conclusions

From the findings presented above, the most immediate conclusion is that the utility of local funding for community and economic development appears to be much more closely resemble what Peters and Fisher have described than what Bartik has postulated with respect to economic development incentives. In other words, spending more on community and economic development does not appear to necessarily translate to improved conditions at the local level, even though such would seem to be a *prima facia* assertion.

This can be seen in the single regressions that used the per capita spending variables as the independent variable. These had coefficients featuring signs that were opposite of what was expected. Taken directly, it would indicate that spending more actually harmed the situation. The same conclusion can be reached with respect to the multiple regressions that had coefficients with signs opposite of what was expected.

Related to this, while the multiple regression equations had more explanatory power, they raised about as many questions as they answered because of their structure. The mixed signs of coefficients and presence of near zero coefficients (which were quite prevalent in some equations) seemed to indicate that mathematical mayhem triumphed over common sense. In other words, an equation with substantial predictive power can be constructed from the independent variables examined, but it may not be internally consistent as coefficients for similar terms must have opposite signs.

There are some additional explanations as well. The opposite-signed coefficients in the single regressions could also be a sign of a phenomenon that spending levels are a reaction to what is occurring in the community. In such cases, the indicator may actually be the independent variable and the spending level the dependent variable. Based on the findings of the analysis, this may mean that in places where wages have increased or unemployment has decreased quickly, it may not be necessary to spend as much on community development and economic development activities as it is in places with greater problems

All of these point to the need for additional research. It may be possible to develop specialized regression equations using only those independent variables which had high explanatory power and exhibited relationships with the indicators (dependent variables) in the expected direction. Additional spending, such as those from municipalities and from other county special revenue funds (i.e., development authorities) could be added to the analysis, if such data can be found. Some non-spending-based independent variables may need to be introduced into the analysis. Different analysis techniques that consider the possible inter-relatedness of the relationships between the independent variables and the indicators (the dependent variables) could be utilized. Only after all matters have been considered can a true understanding of the impact that local government spending has on community and economic development be fully understood.

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